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# Oribatid Mites from Iriomote-jima, the Southernmost Island of Japan (II)

By

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青木淳一\*・中玉利澄男\*\*：西表島のササラダニ類 (II)

In the first report (AOKI, 1973) of this series of papers, 23 species belonging to 13 families of oribatid mites were recorded from the island of Iriomote-jima. In addition to these species we report and describe here 3 species of the genus *Peloribates*, *P. ryukyuensis*, *P. longisetosus* and *P. rangiroaensis asiaticus*. The first species among them is a new species, the second one has hitherto been known from Central America, and the third one is a new subspecies of a Tahitian species.

## *Peloribates ryukyuensis* sp. nov.

(Figs. 1-4)

*Distinguishing characters.* Sensillus short, clavate, rounded at tip. Notogastral setae long, their RLN (relative length to notogaster, %) 23.5-63, 46 on an average; setae  $h_2$  and  $lm$  longest among them and  $ps_1$  the shortest;  $c_1 > c_2$ ,  $lm > la$ ,  $h_2 > h_3$ ; mutual distance  $da-da$  a little shorter than  $c_1-c_1$ . Lamellar setae nearly as long as interlamellar setae and about twice as long as rostral setae. All adanal setae situated close to anal margin.

*Chaetotaxy.* ntg: 14-14, g: 5-5, ag: 1-1, an: 2-2, ad: 3-3.

*Measurement.* Body length: 450-485  $\mu$ ; width excluding pteromorphae: 350-390  $\mu$ .

*Supplementary description.* Body setae minutely barbed, the tip of them being not so sharply pointed except for rostral and lamellar setae. Three pairs of small sacculi can be detected on notogaster, anterolateral to setae  $lm$ , lateral to  $dp$  and anterior to  $h_3$ . Gland opening located between  $lp$  and  $ps_3$ , lyrifissure  $im$  in front of  $ps_3$ . Epimeral and genital setae comparatively long and fine, while aggenital, anal and adanal setae are short and thicker. Pedotectum II trapezoidal. Discidium with a rather pointed and curved tip.

*Material examined.* Holotype (NSMT-Ac 8441, on slide): Sonai, Iriomote-jima, Ryukyu, S. Japan, 26-XI-1972. J. AOKI & S. NAKATAMARI — Paratopotype (1 ex., on slide): the same data as holotype. The type-series is deposited in the collection of National

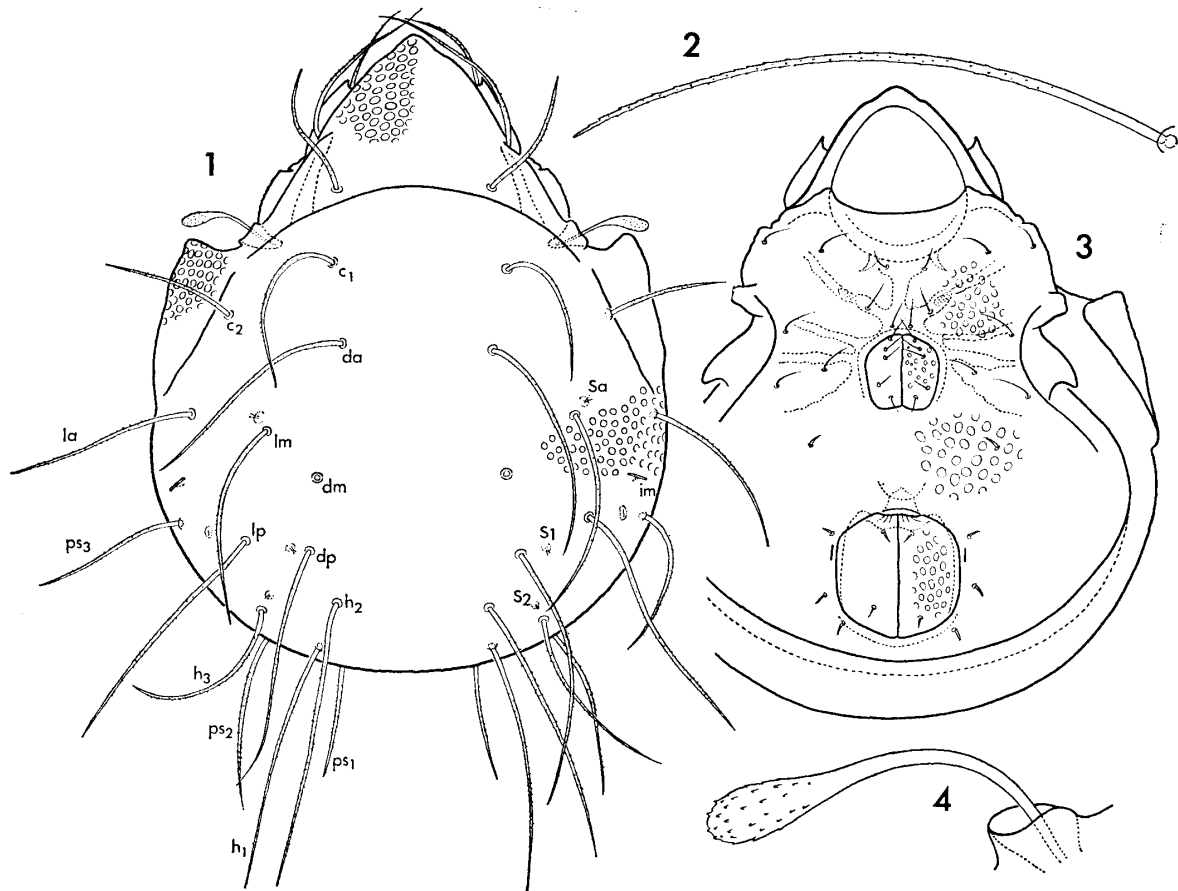
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Figs. 1-4. *Peloribates ryukyuensis* spec. nov. — 1: Dorsal. — 2: Notogastral seta  $h_1$ . — 3: Ventral. — 4: Sensillus.

Science Museum, Tokyo.

**Remarks.** Among the *Peloribates*-species, the following six species, including the new species, have long notogastral setae: *P. fragilis* HAMMER, 1967, *P. hungaricus* (BALOGH, 1943), *P. magnisetosus* RAMSAY in HAMMER, 1967, *P. longicoma* HAMMER, 1958, *P. longisetosus* (WILLMANN, 1930), and *P. ryukyuensis* spec. nov. They are superficially very closely allied to one another, but the relative lengths of notogastral setae are fairly different among them and this feature is considered to be most useful in separating the species. To ascertain this difference, relative length to notogaster (RLN) was calculated on each seta of each species. The result is shown in Table 1. On the five known species the figures were calculated from drawings in the published papers. The figures thus obtained are, we consider, fit for rough comparison, though accuracy is somewhat doubtful. Characteristic feature of the new species in relative length of notogastral setae became clear from this table as already mentioned in "distinguishing characters". Relatively small size of setae  $c_2$  and relatively large size of setae  $h_2$  are considered the important feature of *P. ryukyuensis*. Mutual distance  $da-da$  is somewhat shorter than  $c_1-c_1$  in the new species, while  $da-da$  is always a little larger than  $c_1-c_1$  in the remaining species. In *P. hungaricus* the average

Table 1. Relative lengths of notogastral setae in several *Peloribates*-species with comparatively long setae. Each figure is expressed in RLN (length of seta/length of notogaster  $\times 100$ ). (\* Calculated from the Japanese material)

	<i>c</i> <sub>1</sub>	<i>c</i> <sub>2</sub>	<i>da</i>	<i>dm</i>	<i>dp</i>	<i>la</i>	<i>lm</i>	<i>lp</i>	<i>h</i> <sub>1</sub>	<i>h</i> <sub>2</sub>	<i>h</i> <sub>3</sub>	<i>ps</i> <sub>1</sub>	<i>ps</i> <sub>2</sub>	<i>ps</i> <sub>3</sub>	Average	Range
<i>P. fragilis</i>	<b>52</b>	<b>71</b>	61	49	51	<b>79</b>	<b>71</b>	59	74	54	54	54	53	54	60	51–79
<i>P. hungaricus</i>	<b>50</b>	<b>54</b>	43	47	45	48	48	44	44	46	46	46	47	<b>51</b>	47	43–54
<i>P. ryukyuensis</i> *	41	27	55	—	56	40	<b>62</b>	59	55	63	42	24	40	38	46	24–63
<i>P. magnisetosus</i>	29	<b>39</b>	34	<b>37</b>	<b>37</b>	27	34	<b>37</b>	35	34	32	31	31	27	34	27–39
<i>P. longicoma</i>	23	32	32	30	30	32	<b>36</b>	32	29	29	30	22	24	29	29	22–36
<i>P. longisetosus</i> *	<b>24</b>	<b>24</b>	—	—	22	<b>25</b>	21	23	23	23	22	—	—	23	23	21–25
<i>P. longisetosus</i> *	23	<b>25</b>	<b>24</b>	22	21	23	22	21	22	22	21	19	21	21	22	19–25
<i>P. longisetosus</i>	22	<b>26</b>	21	21	22	<b>28</b>	21	21	22	23	23	22	22	23	22	21–28

length of notogastral setae is most similar to that of *P. ryukyuensis*, but the setae are subequal in length to one another (range in RLN 42.5–53.5), being not so variable as in *P. ryukyuensis* (RLN: 23.5–63.0), interalmellar setae are distinctly longer than lamellar setae, sensilli are more slender, foveolae on body surface are smaller in size, adanal setae *ad*<sub>2</sub> far remote from anal margin, and the body size is larger (567–594  $\times$  425–486  $\mu$ ). Notogastral setae of *P. fragilis* are longer and finer than those of *P. ryukyuensis*, most of them exceeding half the length of notogaster; the longest setae are *la* and *h*<sub>1</sub>, while *lm* and *h*<sub>2</sub> are the longest in *P. ryukyuensis*; sensillar head is strongly swollen. Notogastral setae of *P. magnisetosus*, *P. longicoma* and *P. longisetosus* are shorter in average than those of *P. ryukyuensis*; the longest setae are *c*<sub>2</sub>, *dm*, *dp* and *lp* in *P. magnisetosus*, *lm* in *P. longicoma*, and *la* and *c*<sub>2</sub> in *P. longisetosus*. In addition to these differences in relative length of notogastral setae, *P. magnisetosus* is distinguishable from *P. ryukyuensis* by the fusiform head of sensilli and *P. longicoma* by the setae *da* and *lm* situated so close together.

### ***Peloribates longisetosus* (WILLMANN)**

(Figs. 5–7)

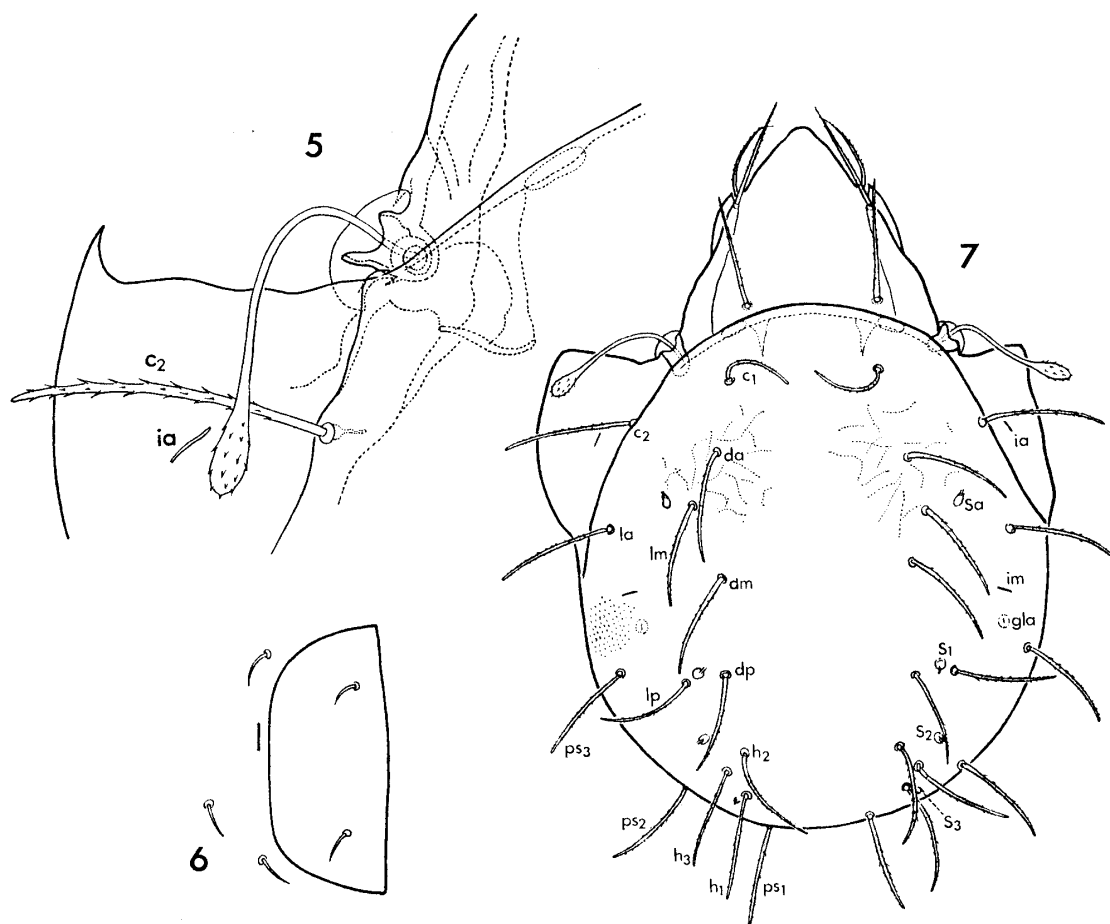
*Parazetes longisetosus* WILLMANN, 1930, p. 241, fig. 3.

*Peloribates longisetosus*: HAMMER, 1958, p. 81.

**Distinguishing characters.** Notogastral setae moderately long, rather thick and stiff, distinctly barbed, their RLN being 19–27 (22–23 on an average); setae *la* and *c*<sub>2</sub> somewhat longer than the remaining setae; seta *lm* inserted in a level anterior to *la*. Sensillus clavate, with a rather thin and long pedicel, being recurved lateroposteriad. Bothridium accompanied by a large hemidiscal scale (“vorspringende Chitinschuppe” by WILLMANN; “pseudostigmatic chitinous scale” by HAMMER). Body integument seems to be smooth, but close examination reveals that it is finely punctured.

**Chaetotaxy.** ntg: 14–14, g: 5–5, ag: 1–1, an: 2–2, ad: 3–3.

**Measurement.** Body length: 310  $\mu$ ; width: 260–270  $\mu$ . WILLMANN’s specimens have larger body size: 450–465  $\times$  315–330  $\mu$ .



Figs. 5–7. *Peloribates longisetosus* (WILLMANN) — 5: Dorsosejugal region (left side), showing bothridium, bothridial scale, sensillus, humeral seta ( $c_2$ ), and pteromorph fissure  $ia$ . — 6: Ano-adanal region (right side). — 7: Dorsal.

*Supplementary description based on the Japanese material.* Lamellar and interlamellar setae a little longer and more pointed at tip than notogastral setae. Four pairs of sacculi well discernible;  $S_a$  located lateral to setae  $lm$ ,  $S_1$  between  $lp$  and  $dp$ ,  $S_2$  lateral to  $h_2$ , and  $S_3$  close to  $h_1$ . Mutual distance of aggenital setae as long as, or shorter than, width of anal opening. Among three pairs of adanal setae, only  $ad_2$  fairly distant from anal margin.

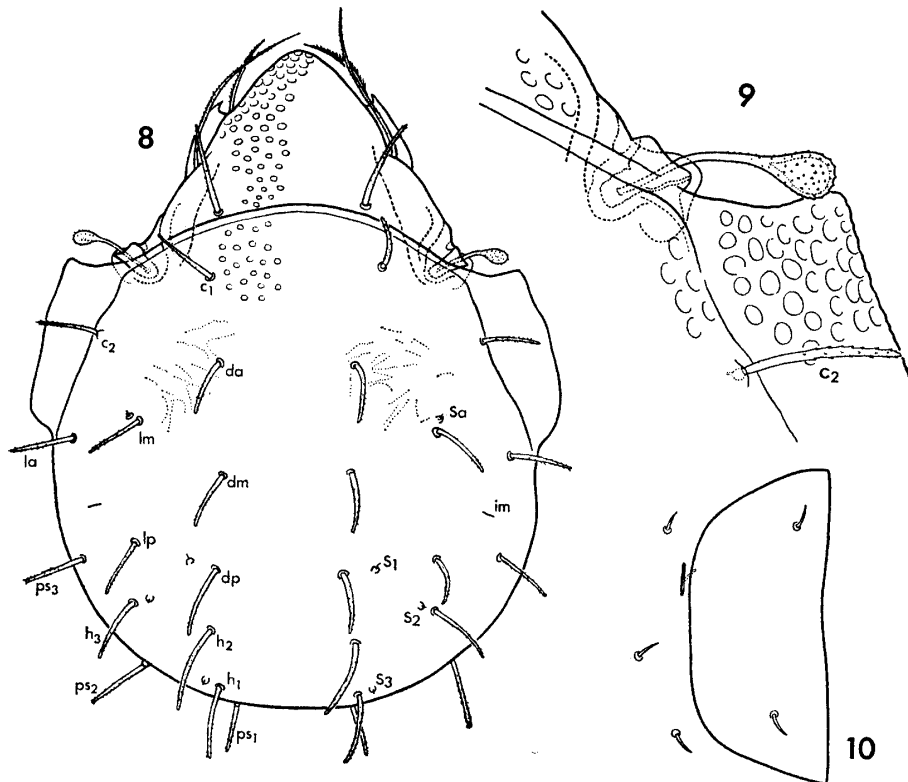
*Material examined.* Three specimens: Sumiyoshi, Iriomote-jima, 30–XI–1972. S. NAKATAMARI & J. AOKI. From litter under vegetation of *Casuarina stricta*.

*Remarks.* This species was originally described by WILLMANN (1930) from Guatemala, Central America. It is very interesting that the same species was found for the second time in South Japan which is far distant from the type-locality. The Japanese specimens well agree with the original description as well as the HAMMER's notice. Our specimens are, however, somewhat different from the Guatemalan ones in having (1) smaller body size and (2) setae of  $h$ -series situated more close together. "*Peloribates longisetosus*" which was reported from Sado Island (AOKI, 1965) is apparently different from true *P. longisetosus*. The taxonomic status of this species is uncertain at the present moment.

***Peloribates rangiroaensis asiaticus* subsp. nov.**

(Figs. 8-10)

The specimens collected from Iriomote-jima Island appear to be quite similar to *P. rangiroaensis* HAMMER, 1972, from Tahiti, in having short and stiff notogastral setae, foveolate body integument, setae *lm* located in a level anterior to *la*, and pedotecta II with undulating anterior margin. However, a comparison in detail between the two forms revealed that our form should be separated as a new subspecies by the differences mentioned below.



Figs. 8-10. *Peloribates rangiroaensis asiaticus* subsp. nov. — 8: Dorsal. — 9: Region in the vicinity of bothridium (right side), showing bothridium, bothridial scal, sensillus and humeral seta (*c*<sub>2</sub>).

(1) *Mutual distances of notogastral setae.* According to HAMMER (p. 43), the distances *c*<sub>1</sub>-*c*<sub>1</sub>, *da-da*, *h*<sub>2</sub>-*h*<sub>2</sub> and *h*<sub>1</sub>-*h*<sub>1</sub> are approximately equally long, *dm-dm* a little longer. In our specimens these distances are also not so greatly different from one another, but *c*<sub>1</sub>-*c*<sub>1</sub> is always somewhat longer than the remainder and *dm-dm* is rather shortest (!) (Table 2).

(2) *Position of notogastral sacculi.* In the HAMMER's original figure *S*<sub>1</sub> is located closer to *lp* than to *dp*, but the succulus is always closer to *dp* than to *lp* in *P. rangiroaensis asiaticus*; the remaining sacculi except *S*<sub>3</sub> have also somewhat different positions: *S*<sub>a</sub> is located anterolateral instead of posterolateral to *lm* and *S*<sub>2</sub> anteromedial instead of anterolateral to *h*<sub>3</sub>.

(3) *Integument of prodorsum.* HAMMER mentioned "The sculpture of the propodosoma consists of light pits increasing in size towards the posterior end of the propodosoma."

Table 2. Relative mutual distances of some notogastral setae in the median series ( $c_1-c_1$  as 100). *Peloribates rangiroaensis asiaticus* subsp. nov.

Mutual distance	Specimen						
	A	B	C	D	E	F	H
$c_1-c_1$	100	100	100	100	100	100	100
$da-da$	87	85	93	72	90	87	81
$dm-dm$	76	79	90	70	79	78	82
$dp-dp$	89	79	88	70	82	82	87
$h_2-h_2$	89	77	90	76	85	82	83
$h_1-h_1$	90	79	88	81	93	84	103

The tip of the rostrum in front of a faint transverse line is smooth". In *P. r. asiaticus*, however, whole the surface of prodorsum is sculptured with light pits increasing in size towards the tip of rostrum.

*Material examined.* Holotype (NSMT-Ac 8446, in spirit): Sonai, Iriomote-jima, South Japan, 26-XI-1972. S. NAKATAMARI & J. AOKI. — Paratopotypes (11 exs., on slides): the same data as holotype. — Paratypes (4 exs. in spirit and 3 exs. on slides): Mt. Goza-dake, Iriomote-jima, 3-XII-1972. S. YASUMA, J. AOKI & S. NAKATAMARI. — Paratype (1 ex. on slide): Near the mouth of Urauchi-gawa River, Iriomote-jima, 29-XI-1972. J. AOKI & S. NAKATAMARI. Two paratopotypes are deposited in the collection of Hungarian Natural History Museum, Budapest, and the remaining types in the collection, of National Science Museum, Tokyo.

## 要 約

第1報 (AOKI, 1973) では西表島から13科23種のササラダニ類を報告したが、今回はそれに追加して、同島の土壌から採集されたコソデダニ科 Haplozetidae に属する次の3種を記載報告した：リュウキュウマルコソデダニ (新称) *Peloribates ryukyuensis* spec. nov., チビマルコソデダニ (改称) *Peloribates longisetosus* WILLMANN, ミナマルコソデダニ (新称) *P. rangiroaensis asiaticus* subsp. nov. 第1の種は新種、第2の種は中米のグアテマラから知られ、第3の種はタヒチ島から記載された種の新亜種であった。このように日本とかけ離れた地域に分布する種、あるいはその近縁なものが八重山群島から発見されたことは大いに興味深い、日本周辺のササラダニ相に関する知識が未だ極めて乏しい現状では、分布上の議論は行えない。

## Literature

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